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AN

INAUGURAL DISSERTATION

ON THE

YELLOW FEVER.

SUBMITTED TO THE PUBLIC EXAMINATION OF THE

FACULTY OF PHYSIC

UNDER THE AUTHORITY OF THE TRUSTEES OF COLUMBIA COLLEGE,
IN THE STATE OF NEW-YORK,

The Right Rev. BENJAMIN MOORE, D.D. President;

FOR THE DEGREE OF

DOCTOR OF PHYSIC,

On the 8th Day of November, 1803.

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Citizen of the State of New-York.

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TO THE

Medical Students of Columbia College.

IN compliance with an ordinance of this College, I now present to the Public, as an Inaugural Dissertation, a few remarks upon a disease till lately but little known in this country; the nature of which we have unfortunately been experimentally taught at the expense of the lives of many of our most valuable citizens.

The subject of this paper is one which has afforded matter of considerable speculation to all classes of the community, but particularly to Physicians, who, at the present day, greatly differ, both as it respects the origin and the treatment of Yellow Fever.

I may, by many persons, (whom I must conceive less candid than the gentlemen to whom this is addressed) be deemed guilty of detraction on the one hand, and arrogance on the other, in attempting to differ, in the one case, from high authorities, and, in the other instance, in even daring to hazard the publication of a single idea not sanctioned by popular opinion. A blind acquiescence in the opinions of men of acknowledged ability, is an evil which has ever been much deprecated by liberal men, and which must continue

so to be until a corrective be effectually applied. This servile attachment is a prominent feature in the character of professional men generally; but it is more observable among medical gentlemen than among persons of any other description; and it seems to arise, as a very natural consequence, from the manner in which a medical education is conducted. Young men, upon commencing the study of the SCIENCE OF LIFE, think it not prudent to indulge their own speculations in matters of so much consequence both to their patients and themselves. In addition to this, they are sometimes even taught to distrust the evidence of their own senses, rather than suffer them to give birth to an opinion which would militate against any favourite theory. Works of experienced writers, as they are called, are put into their hands: those writings are filled with that kind of knowledge which is infinitely above the comprehension of their juvenile capacities: their judgments are matured only by the exercise of their understandings; and ere their judgments are sufficiently strong, or before they dare assume that independency of mind which alone is the necessary effect of the exercise of their own intellectual faculties, they are deluded by the plausible, though incorrect, reasonings of ingenious sophists. They admire their productions; they respect their superiority of talents; and thus are led on, from one degree of partiality to another, until, finally, ere themselves are aware, they are found to be zealous advocates for systems which they do not understand, and practising from principles deduced from mere hypotheses grounded upon the assumption of false premises.

It is this over-weening respect for the opinions of great men which has been the efficient cause of the comparatively slow progress of medical science, and it is this which will continue to retard it as long as professional pride, divested

of liberality of sentiment, shall glory in echoing the dogmas of philosophic tyrants. Waving all further remarks on the ill consequences which result from servilely adopting the opinions of our fathers, I shall now enter particularly on my subject; fervently wishing that the example of the Professors of this College may have its due effect upon you, Gentlemen, who are placed under their guardianship, in enabling you to combat this error, so degrading in itself, and so injurious to the cause of Medicine.

JAMES R. MANLEY.

AN

INAUGURAL DISSERTATION

ON

YELLOW FEVER.

YELLOW Fever has, by a great part of the medical profession, been looked upon as a contagious disease: I shall therefore commence this subject by an examination into the proof which supports this idea: previous to which it will be necessary to define the terms *infection* and *contagion*, or *simple* and *specific infection*.

Simple infection I consider a certain deleterious agent, operating upon the human body, through the medium of our atmosphere: this deleterious agent being the product of natural secretion and excretion, or the product of animal and vegetable decomposition, depraved by the combined action of fortuitous causes, such as a want of cleanliness, of free ventilation; an unusual degree of heat and humidity, &c. which all tend to produce a high grade of predisposition, fitting the body for the operation of the usual occasional causes of

fever: and in this sense all diseases may be said to be more or less infectious.

Specific infection, or *contagion*, I consider as a morbid material, imparted to the human body either by actual contact, or through the intervention of our atmosphere: this material being the morbid product of *morbid* secretion or excretion, producing similar disease in all places, in all states of the weather, in all seasons of the year, in all ages, sexes, and constitutions.

This definition, imperfect as it may be, I am disposed to think, will be found to hold true, as applied to small-pox, measles, scarlatina, and the whole class of exanthematous diseases, which are decidedly propagated by specific infection.

We do not find that the plague becomes contagious before the inguinal or axillary buboes have formed, and until a morbid secretion has actually taken place. And our own observations upon a disease till lately of very frequent occurrence, all tend to confirm the truth of this position, that even diseases of specific infection cannot reproduce themselves until the morbid material which first excited the disease shall have exerted such an influence upon the system as shall have caused the secretion and excretion of the same active matter which was essential to its generation in the first instance.

We find from actual observation, that the diseases just above mentioned, though assuredly

specifically infectious, never prove so until the morbid secretion which characterises all contagious diseases has made its appearance.

The Yellow Fever has likewise been viewed as a disease exclusively imported; and, unfortunately, those who have embraced this opinion have also considered it as specifically infectious, making the morbid secretion and excretion, which are the essential characteristics of *contagion*, either the yellowness of the skin, or the matter of black-vomiting; neither of which will be found true, since it proves fatal in many instances when neither of these symptoms is present.

If Yellow Fever were a disease of specific infection, it should certainly be possessed of one symptom characteristic of itself, as all contagious diseases have such symptoms. The pathognomonic symptoms of small-pox, measles, scarlatina, &c. are very evident. Now, if we were disposed to favour the idea of the specific nature of Yellow Fever, where should we find a symptom which should designate it particularly? We should not be able to distinguish it by the flavidity of the skin; for this is no uncommon symptom in many febrile diseases, and almost invariably accompanies protracted cases of common tertian intermittents in this country: and the matter of black-vomiting, to be made pathognomonic in this disease, should always mark this form of fever, and never occur in diseases of any other

description. And further, we can by no means allow either of these cardinal symptoms to be the product of any morbid change which has taken place in any of the circulating fluids of the system.

Again: if it were a fever of a specifically infectious nature, it should reproduce itself in all places, in all persons, and in all states of the atmosphere; we should observe it extending its sphere of action in the *winter* season as well as in *summer;* we should find it epidemic, when once produced, in the most northern latitudes, and always generating identical disease: But experience teaches us the contrary; and the same causes which are adequate to its production in warm southern climates, must acquire a much greater degree of intensity to generate a fever of the same type in this or any more northern country.

Plague, when carried to Moscow, progressed by immediate specific infection; and bubonic plague would become epidemic in the same manner, whether in the torrid latitude of *Gambia*, or in the frozen regions of *Zembla*. Dare any person risk the same assertion of Yellow Fever? He certainly might with the greatest safety, having once established the identity of the two diseases.

That the disease under consideration may be imported is very possible, nay, probable; but it

is not necessary, in order to believe this, that we should call in the aid of contagion. We can easily conceive that a fever contracted in the West-Indies, from exposure to mere vicissitude of weather, independent of the auxiliary causes which there always exist, shall, in a passage of three or four weeks, in the confined air of a small vessel, reproduce analogous disease in others; not from the specific nature of the disease itself, but from the simply infectious nature of it, in common with all others, when favoured by the concurrence of external causes. Again: the diseases so produced shall, in the confined apartments of sailors' booths, in low, exposed and naturally unhealthy situations of a city, become auxiliary, though not strictly exciting causes of similar diseases; which again shall differ in proportion to the intensity of the causes which co-operate with the first simple infection.* The experience of every year would seem to confirm the truth of this opinion: and if we should observe that autumnal fevers differ as the causes which produce them are more or less powerful; and if we should further observe, as we all must

* The propriety and usefulness of quarantine establishments, in all sea-port towns, not only with a view to guard against diseases strictly contagious, but also to prevent the introduction of disease in the above manner, fully appears from the foregoing paragraph; and surely quarantine law should, from the single circumstance of its obviating possible evil, meet with the sanction of all legislative bodies, in all places where reasonable apprehension can be entertained.

observe, if not blinded by pre-conceived opinion, that Yellow Fever is a variety of autumnal fever, arising from the action of concentrated causes upon high degrees of predisposition; would not an argument be furnished which should pointedly oppose the idea of contagion?

If it were contagious, how should we account for the different appearances which it assumes in different states of the weather, and upon different constitutions? And it certainly is a fact well authenticated, that the mildest intermittents of our country do degenerate into this form of disease, in such situations as are favourable to the propagation of it. In what way can we reconcile these things with the specific nature of the disease in question?

It has appeared in the interior of our country, some hundreds of miles from any sea-port town, in places totally inaccessible by water. If it were contagious, we must presume, upon the truth of one or both of these circumstances, either that the disease existed there from time immemorial, or that, notwithstanding the inland situation of the country, it has there been carried, concentrated, and condensed in materials, capable of retaining the specific matter of infection; neither of which opinions are sufficiently supported to warrant their belief: but, on the contrary, where it has so appeared, it has always been found to originate from local causes, and to

progress or abate, both as respects the number of its victims and the violence of its symptoms, in proportion as the causes first producing it existed in a greater or less degree.

Having said thus much in endeavouring to disprove the contagious nature, as also the foreign origin of Yellow Fever, I shall conclude this part of my Essay; fervently wishing, if it be possible, that those gentlemen who still advocate the doctrine of contagion and importation, would divest themselves of pre-conceived opinions, unbiassed by favourite writings, discriminate between speculative and experimental reasoning, and candidly examine the validity of the evidence which supports either opinion. It is much to be regretted that medical writers have suffered their trifling party differences to thwart their judgments in a matter of so much consequence to the public as the subject now before us: for it would appear that the opposition made to a doctrine so satisfactory, and so very adequate to the explanation of the disease, is to be attributed to a want of that conciliating spirit which should always characterize professional writings.

The disease which is the subject of this Essay is thus marked in its invasion, progress and termination:—It is ushered in by a great degree of languor, listlessness, want of recollection, and disinclination to all kinds of active exertion; to which soon succeeds the febrile shivering, which

again having continued an indefinite period of time, is followed by an intense degree of heat—quickened and laborious respiration—pulse, for the most part, frequent, full, hard and throbbing—skin dry—tongue whitish and moist, having an appearance peculiar to diseases of membranous inflammation—bowels generally costive, great oppression at the precordia, attended also with acute pains of the head, back and loins, with a suffusion of the whole countenance, but particularly of the eyes. In this state of the disease the patient is restless, sleeps little, and awakes without being refreshed; the thirst also, from the first invasion of the disease, being excessive. These symptoms, if not relieved, only prove to be the precursors of another set of symptoms infinitely more dangerous, and to which the assistance of the physician can afford very little relief. The pulses sink; they become weak, very frequent, and often intermittent. The state of the tongue is infinitely more alarming, having changed from a whitish colour to one almost approaching to black. The redness of the countenance generally, and eyes in particular, is now followed by a yellow colour. The whole body often takes on the same appearance. The vomiting, which at first was by no means very alarming, now becomes incessant, and the matter ejected, which, in the first instance, was the natural contents of the stomach, appears now to

be the effect of a morbid change having taken place in that organ. Hemorrhages from the nose and mouth are not unfrequent. The patient is by turns sensible and delirious. Subsultus tendinum, and coldness of the extremities, now succeed, when the patient may be said to be struggling with death, which unfortunately soon follows.

These are the symptoms of the disease, as it commences and proceeds on to a fatal termination in the greater number of cases; though it can scarcely be said that any of the symptoms which here mark the latter stage of the disease are constant and invariable. The symptoms of vomiting and delirium are very generally vicarious; and the flavidity of the whole body is by no means so constant an attendant upon the disease as the yellowness of the eye. Indeed, the symptoms which generally distinguish it greatly differ in degree, and this difference is commonly found proportionate to the intensity of the combined causes.

CAUSES.

I COME now to consider the causes which have been found adequate to the production of this disease, at different times, for years past, both in this country and in the West-Indies.

If we take a candid survey of the works of those gentlemen who have written professedly on the diseases of warm climates, we shall find demonstrative proof of its local origin wherever it made its appearance. If we look into the different medical publications in this country, the result of our researches will be the same. Physicians of eminence, in many parts of America, have instituted inquiries on this subject, and the result of those inquiries has been what we might have expected from reasoning *a priori* on the nature of the disease.

It is remarked by those physicians who have treated on this subject, that when it does appear, it always succeeds great moisture, in that season of the year in which the sun exerts its greatest influence; and although many of them contend for the specific nature of the disease, we observe in all their writings this remarkable coincidence laid down; a proof that the one is necessary, and the other indispensibly requisite in the production of that vitiated state of the atmosphere to which Yellow Fever, as it has appeared in the sea-ports of the United States and in the West-Indies, is to be wholly attributed. To this it may be objected, that in the autumnal season of the years 1791, 1793, 1795, and 1797, rain did not fall in greater quantity than is usual in warm weather; notwithstanding which this disease appeared among us. But it is to be recollected, that the slips,

wharves, and low and filthy situations of many parts of our city, furnished every thing essential to the production of this pestilential effluvium; and it was to the locality of the cause alone that we are to impute the comparatively small number of its victims in those seasons.*

It would be needless for me to multiply authorities in support of the endemial origin of this disease. Dr. Rush, in his treatise on the Yellow Fever, as it appeared in Philadelphia, in the year 1793, has placed this matter in a very clear point of view, as respects that place; and our own observations in the year 1798, in this city, perfectly coincide with those laid down by writers on the causes of fevers in warm climates: and if analogical reasoning may be admitted, we can no longer doubt its indigenous origin. The banks of the Ganges, the Indus, and the Nile, are all visited with analogous diseases, when the waters which inundated their respective countries have begun to subside, and their muddy shores are exposed to the direct rays of a scorching sun: and the fatality of disease in the islands of Sumatra and Java is justly attributed to the same cause. In addition to this, the writings of Lind, Jackson, Mosely, and others, might be adduced to

* Vide an Essay, inserted in the Medical Repository, vol. i. p. 315. by Valentine Seaman, M. D. entitled, *An Inquiry into the Cause and Prevalence of the Yellow Fever in New-York, in* 1795. See also a Report made by a Committee of the Medical Society of this State, in January, 1799.

prove the absolute power of vegetable and animal decomposition to produce the most violent and dangerous febrile diseases.

Whether the vitiated atmosphere, thus generated by the action of the sun upon animal and vegetable materials capable of decomposition, be merely the predisponent or the exciting cause of this disease, I judge not necessary to answer; though I should suppose that this will differ according to the situation of the patient previous to the invasion of disease. Any agent, capable of inducing a great degree of debility, may become a predisponent cause: accordingly, excessive heat, fatigue consequent upon mental or bodily exertion, fear, grief, intemperance in eating, frequent intoxication, the application of cold, and the subduction of accustomed stimuli, are all laid down by authors as predisponent causes of the disease, though, at the same time, no person can doubt the capability of any one of these causes to excite the disease, when operating upon predisposition already formed. From continued action the predisponent may become the exciting cause. Thus a vitiated atmosphere, independent of any other cause capable of being detected by our senses, may become, and I have no doubt does become, efficient to the production of Yellow Fever.

TREATMENT.

FROM the consideration of the symptoms of this disease, in all its different stages, the first indication which would present itself would be to moderate the excessive excitement of the system.

II. To obviate the occasional causes of fever.

III. To prevent or remove the danger of the system falling into a state of great debility.

The first indication would be answered by,

1. Blood-letting.

2. Mild cathartic medicines.

3. Cool air—cool water, externally applied, and internally exhibited with acids.

4. A temporary suspension of the exercise of the senses.

5. Blisters, applied to those parts most liable to be injured by the increased action of the arterial system.

I am well aware that the propriety of blood-letting in this disease has been much questioned; but I am very much inclined to think that the prejudice against this point of practice has arisen from the two general and promiscuous use of the lancet.

Those gentlemen who so strenuously oppose blood-letting, are, notwithstanding, great advocates for the old sudorific plan of treatment. Now

this sudorific plan, with them, is intended to answer the double purpose of eliminating from the system the morbid material which generates the disease; while, at the same time, it serves to moderate the action of the sanguineous system. If so, the event of both methods would be precisely the same: but as respects the operation of the remedies, in my view there would be an essential difference. In the one case the excitability of the system will be almost exhausted by the administration of medicines to force a perspiration, which can by no means prove critical, since the means used defeat the very end for which they are intended: whereas, in the other case, we observe that, when venesection has been premised, perspiration is almost the immediate consequence of the application of tepid bathing, or even cool air; and this perspiration will be found to be infinitely more beneficial to the patient than that induced by stimulating medicines and vinous drinks, since it is not followed by any considerable exhaustion of strength, it being the immediate effect of the subduction of heat; while, in the other instance, it is altogether caused by excessive stimulation, which we wish as much as possible to avoid.

But the greatest objection alleged against this practice is, *that it induces a degree of debility very dangerous to the patient, and very difficult to remove.* A question might here be asked which

experience only must answer—which of the afore-mentioned remedies induces the greatest degree of exhaustion? And here, as in all other medical disputations, the comparative merits of each mode of treatment should be settled by the comparative success of each practice.

The occurrence of hemorrhage in this disease is not very unusual; nay, it is a common circumstance. If these hemorrhages are active in some patients, no person can doubt the propriety of venesection in such particular cases; and if passive, they must occur from indirect debility, which is the effect of excessive excitement. If we obviate this excessive excitement, we of necessity prevent this dangerous state of indirect debility; and in doing this we do nothing more than anticipate an evacuation which, in all probability, will take place: and were this the only good effect arising from its use, it would certainly be more safe to hazard the subduction of a definite quantity of blood, than to risk the event of passive hemorrhage; more especially since, by this means, we accelerate a recovery which else would be tedious, painful and protracted: we fit the system for the after operation of other remedies, and relieve ourselves from all fears of congestion or effusion in parts essential to life.

It has been ascertained, from the dissections of persons who have died of this disease, that, in very many instances, some of the viscera were

congested, and effusion had taken place in others; as also that the membranes immediately investing those organs had taken on an inflammatory appearance. Surely such circumstances justify the propriety of blood-letting, and call loudly for the exercise of the lancet as an essential point of practice.

In thus speaking of blood-letting, I would not be understood as approving it in all cases of this disease. I only wish to recommend its more general use, and to check, if possible, that torrent of obloquy which has been so illiberally poured upon those physicians who have given into this practice.

In evacuating the first passages it will be proper always to have in view the state of the stomach, whether it be sufficiently retentive to admit of the exhibition of stimulant medicines: if it be not, we should by no means hazard the administration of a remedy which would tend to invert its action—the inverted action of this organ being one of the most formidable symptoms with which we have to contend: notwithstanding which caution, it would be proper, in the first stage of the disease, before the stomach is materially affected, to exhibit, in addition to the neutral salts usually prescribed, calomel in proper doses, which will then answer the double intention of evacuating the stomach and intestines at the same time that it would relieve

the disease by inducing a new irritation, and, by increasing the action of the absorbent system, free the patient from the dangerous consequences of congestion or effusion in any vital organ. If the second intention of this medicine cannot be answered in this way, it may be used in the manner recommended by Mr. Clare, and also externally applied with great advantage. The propriety of mercurial medicines in this disease, and the great safety with which they may be administered in its most desperate forms, will appear from the practice of Dr. Chisholm in the fevers of Grenada, and also from the accounts given of it by the most eminent physicians in this country.*

In addition to the mercurial medicine already named, it would be proper to exhibit such saline remedies as would relieve the stomach at the same time that they proved mildly eccoprotic, and co-operated with the bath in producing perspiration; and the medicine best calculated for this purpose will be found to be the *citrate* of pot-ash, given in its forming state (the effervescing draught of Reverius); the carbonic acid air, extricated during the formation of this salt in the

* Vide Rush's Inquiries, vol. iii.—Brown's Account of this Fever as it appeared in Boston, 1798—and Stuart's Inaugural Dissertation: from all which writings it would appear, that when calomel had exerted its influence upon the glandular system, so as to have induced a sensible ptyalism, the recovery of the patient was almost insured.

stomach, being very grateful to the patient, and very effectual in checking the disposition to vomiting.

The use of mild enemata, throughout the whole course of this disease, after the first evacuations have been premised, is a point of practice very much and very properly insisted on. The superior advantages of keeping the bowels pervious by this method, rather than by the exhibition of cathartic medicines, when the stomach is so remarkably irritable and irretentive, will appear to every person who is the least conversant with the disease under consideration.

As a third mean of moderating the inordinate action of the arterial system, we know none better calculated than the admission of cool air to the surface of the patient, the exhibition of cool subacid drinks, together with the use of cold-bathing. All authors, with great propriety, agree in recommending to induce perspiration in all febrile diseases, as a certain mean by which to free the system from that extraordinary quantity of heat which is the essence of the disease; and from actual observation it has been ascertained, that there is no method which more certainly produces this effect than bathing, which has this decided advantage over the exhibition of internal remedies (which, by the bye, are generally antimonial preparations), that its tem-

perature can always be suited to the state of the patient, and the manner of its application may be varied as circumstances shall at any time seem to require: whereas, the state of the patient's stomach often renders the use of internal medicines unavailing, and very frequently injurious. It has been found by experiment, that it may be used with success in all states of fever, except at its immediate invasion, or when the patient suffers in the cold stage of the paroxysm: and so fully satisfied was Dr. Jackson of its efficacy, that he insists very much upon its use in the fevers of Jamaica; and, speaking particularly of fever as it prevailed at Savanna La Mar, he has these remarkable words: "It should be used with freedom and with boldness, and it is the remedy on which we must principally depend."* Dr. Rush believed it to be a very powerful remedy in fevers, from witnessing its efficacy in other diseases, and found, upon experiment, that, judiciously applied, it answered his most sanguine expectations, and that, bloodletting excepted, no remedy was more effectual in reducing the excessive excitement of the system. And Dr. James Currie, of Liverpool, has clearly established its safety and confirmed its celebrity, by repeated experiments in all cases of fever which came under his observation. I deem

* Jackson on the Fevers of Jamaica, p. 223.

it unnecessary here to detail the particular modes of applying water, or the particular temperatures of baths, as applied to the different states of a patient. For a more minute account of the efficacy of this practice, I refer my readers to the invaluable works of those celebrated authors just mentioned.

As a fourth mean to answer the first indication, the irritations caused by impressions made upon the organs of sense are to be avoided as much as in our power, and particularly those which produce disagreeable sensations. The exercise of the mind, as proving directly stimulant to the system, should be very sedulously guarded against; particularly such exercise as may be productive of passion or emotion.

For the same reason that we would apply epispastics in local inflammatory affections, we should use them in the first stage of this disease, that we may not only have the benefit resulting from their evacuations, but that we may reap the advantages which would arise from their action, as inducing new and more powerful irritations in the parts contiguous to those which labour under actual or partial inflammation from the operation of disease.

From the dissections of persons who have died of this disease, it has been ascertained that the vessels of the *stomach* in some instances, those

of the *brain* in others, and those of the *liver* in many, have been distended with blood, and have put on the appearance of parts having undergone inflammation. In such cases the application of blisters to those particular parts would have been adviseable: and from the tendency which this disease shows to spend its force upon one or other of these organs, by inflammation and its consequences, it would, in my opinion, not only be adviseable, but really judicious and successful practice, to apply blisters in the early stages of all cases of this disease, before the *brain*, *stomach* or *liver* become materially affected; at the same time carrying the application to the point of ulceration, that they may serve as extensive issues. But in the more advanced stages of this fever, likewise, the application of cantharides, with a view to stimulate the patient, and render his system more alive to the operation of other remedies, should not only be admitted, but insisted on as an essential part of the cure; and for this purpose it is not requisite that it should vesicate the part to which it is applied: we only wish to avail ourselves of its stimulus, and its action as a rubefacient fully answers our purpose.

The treatment which shall answer the second general indication, viz. the avoiding the occasional causes of fever, may be laid down in a very few words. For this purpose the patient

should be immediately removed from such situations as are favourable to the generation of disease. The apartment in which he is lodged should be as spacious, cleanly and well ventilated as possible. If this be impracticable, the utmost possible care should be taken to correct the atmosphere in which the patient is immersed, and to cool it by artificial means. The chamber of the patient should be in some measure covered with powdered quick-lime. The bed and body linen of the patient should be frequently changed. The secretions and excretions should be kept in equilibrio, lest by their retention, in the one case, they should create disagreeable irritations, or by their profuse evacuations, on the other hand, they should induce a dangerous debility. The excrementitious matters of the patient should be rapidly and carefully removed from his room. The state of his stomach and bowels should be strictly attended to, and plentiful dilution persisted in; being careful that nothing be taken into the stomach as food that cannot be easily assimilated by its digestive powers. To these may be added the injurious application of cold, as a point concerning which we should be very solicitous. By attending to these circumstances we shall, in a great measure, obviate the occasional causes of fever.

After having answered the two first indica-

tions, procured a solution of the fever, and guarded the patient from the danger of a relapse, as far as that relapse shall depend upon the application of usual causes, I come now to the last general indication—to prevent or remove the danger of the system falling into a state of great debility. The operation of medicines, in addition to the action of disease, must certainly have greatly exhausted the natural vigour of the patient. To prevent this exhaustion of strength being over-proportionate to the state of previous febrile excitement, requires judicious treatment in the first stage of the disease, and therefore would more properly be referred to the first indication. The removal of this state of debility is that which more particularly appertains to this last proposed part of the cure; upon which it is the more unnecessary to dwell, since it is that part of the treatment of all fevers which is, above all others, best understood. I shall only observe, that the exhibition of tonic medicines to patients convalescent from this disease, I believe, is not so generally necessary as has been usually supposed; the recovery of persons having once commenced, being in this, as in most other acute diseases, remarkably rapid. The administration of bark, wine, steel, blisters, cold-bathing, &c. though they may be admitted, in many cases, as being productive of benefit to patients,

may, generally speaking, be dispensed with, without incurring any hazard; and the restoration of the patient's strength may be safely trusted to the exhibition of a nourishing diet of easy digestion, consisting chiefly of farinaceous food, together with the use of milk (which is extremely grateful to most patients at this period), moderate exercise in the open air, and the regimen usually observed by patients convalescent from febrile disease.

THE END.

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